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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/734,398 | 12/12/2003 | Ronald C. Meadows | 5308-376 | 1180 |

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| EXAMINER |
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WILLE, DOUGLAS A

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| ART UNIT | PAPER NUMBER |
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2814

DATE MAILED: 03/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/734,398

Applicant(s)

MEADOWS, RONALD C.

Examiner

Douglas A. Wille

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-27 is/are pending in the application.
- 4a) Of the above claim(s) 21-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1203.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1 – 5, 13 – 16 and 20 are rejected under 35 U.S.C. 102(a) as being anticipated by Morse.
3. With respect to claims 1 and 5, Morse (see cover Figure) shows a plurality of cells connected in parallel where the gate pitch is varied in a predetermined way.
4. With respect to claim 2, a substantially uniform temperature is shown (see cover Figure).
5. With respect to claim 3, a lower peak temperature is shown (see cover Figure).
6. With respect to claim 4, the temperature is substantially uniform except for the end.
7. With respect to claim 11, Morse shows SiC (column 1, line 42).
8. With respect to claim 12, a more uniform temperature distribution is shown by Morse.
9. With respect to claims 13 and 14, Morse shows a variation of less than 5%.
10. With respect to claim 15 Morse (see cover Figure) shows a plurality of cells connected in parallel where the gate pitch is varied in a predetermined way and a lower peak temperature is shown (see cover Figure).
11. With respect to claim 16, Morse shows a linear array.
12. With respect to claim 20, Morse shows SiC (column 1, line 42).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 6 – 8, 10 and 17 - 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zommer et al. in view of Morse.

15. With respect to claim 6, Zommer et al. shows that for a two dimensional array of cells hot spots can occur which affect device performance (paragraph [0011] and [0014]) and teaches to vary the cell characteristics in a predetermined way by grouping cells (paragraph [0031] and shows that the variation can include gate pitch (paragraph [0045]) but does not specify the level of uniformity achieved. Morse shows With respect to claim 1, Morse (see cover Figure) shows a plurality of cells connected in parallel where the gate pitch is varied in a predetermined way and a substantially uniform temperature is shown (see cover Figure) and a lower peak temperature is shown (see cover Figure). It would be obvious to use the Morse technique for the Zommer et al. device since it produces a quantifiable effect.

16. With respect to claim 7, it would be obvious to vary the structure in both dimensions.

17. With respect to claim 8, Morse shows a very uniform temperature and is therefore optimized for the device. To the extent that an inverse proportionality would achieve this uniformity it is inherent in the Morse device.

Art Unit: 2814

18. With respect to claim 10, Morse shows FET devices but the same technique would obviously apply to any FET device including MESFETs since it is the variation of the gate pitch that provides the temperature uniformity.

19. With respect to claim 17, Zommer et al. shows a two dimensional array.

20. With respect to claim 18, while it is not an optimum configuration, it would be obvious to only vary the features in one dimension and still gain a significant advantage.

21. With respect to claim 19, the two dimensional variation is obvious.

Claim Rejections - 35 USC § 112

22. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

23. Claim 8 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 8 depends on claim 1 and neither claim show a uniform temperature profile but it is assume that a uniform profile is the objective of the claimed structure. There is no support in the specification for the strict inverse relationship, i.e. $P=a/d$ where P is the pitch, d is the distance and a is a constant. This is especially dubious since the temperature profile will also be a function of the heat sink attached to the die. To the extent that the strict inverse is not intended to produce the desired uniform profile then the claim appears to be unrelated to the objective and is entirely arbitrary.

Election/Restrictions

Art Unit: 2814

24. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1 – 8, 10 - 20, drawn to a device***, classified in class 257, subclass 202.

II. Claims 21 - 27, drawn to a method, classified in class 438, subclass 142.

The inventions are distinct, each from the other because of the following reasons:

25. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the device be used to control circuit parameters rather than the temperature.

26. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

27. During a telephone conversation with Timothy O'Sullivan on 7 March 2005 a provisional election was made without traverse to prosecute the invention of I, claims 1- 8, 10-20.

Affirmation of this election must be made by applicant in replying to this Office action. Claims 21 – 27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A. Wille whose telephone number is (571) 272-1721. The examiner can normally be reached on M-F (6:15-2:45).

Art Unit: 2814

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Douglas A. Wille
Primary Examiner